SIMTEK6265

IN THE UNITED STATES PATENT OFFICE

In re Application of
Naoya Isoda
Masahiko, Enoyoshi

App. No.: 10/064508
Filed: July 23, 2002
Conf. No.: 6620
Title: ENGINE CONTROL METHOD AND DEVICE FOR A VEHICLE
Examiner: T. Lewis
Art Unit: 3618

I hereby certify that this correspondence and all marked attachments are being deposited with the United States Patent Office via fax to (703) 872-9327 on:
April 5, 2004
Ernest A. Beutler
Reg. No. 19901

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

APPELLANTS' BRIEF

Dear Sir:

RELATED APPEALS AND INTERFERENCES

There are no other appeals or interferences that would have a bearing on or be affected by the decision in this appeal.

REAL PARTY IN INTEREST

In addition to the inventor, the real party in interest is his assignee, Kabushiki Kaisha Moric, a Japanese corporation.

STATUS OF CLAIMS

Claims 1-20, all of the claims of this application are before the Board on appeal. A clean copy of these claims appears in the Appendix to this brief.

STATUS OF AMENDMENTS

No amendment has been proposed subsequent to the Final Rejection here under appeal. Therefore the claims before the Board are as finally rejected.

APPELLANTS' INVENTION

Appellants' invention related to a control for a vehicle internal combustion engine that protects the vehicle transmission from possible damage when a shaft experiences an acceleration of a magnitude that could cause potential damage by reducing the engine power to a level where the transmission will be safe and top a control method for achieving the same purpose.

In accordance with both the apparatus and method the shaft acceleration is determined by measuring the shaft speed for a portion of a single rotation. This is compared with a measurement of shaft speed at another time such as during the complete revolution during which the partial revolution is measured or on a successive revolution.

The embodiments are described in full detail under the appropriate heading in the specification of the application by reference to the figures thereof.

ISSUES BEFORE THE BOARD

The several issues before the Board in this appeal are:

1. Is the subject matter of claims 1-3, 5, 7, 8 and 11 anticipated under 35 USC 102(b) by US Patent 5,103,399 (Iwata et al)?
2. Is the subject matter of claim 4 obvious under 35 USC 103(a) from Iwata et al in view of US Patent 5,970,951 (Ito)?
3. Is the subject matter of claims 10, 12-14 and 16 obvious under 35 USC 103(a) from Iwata et al in view of US Patent 6,024,674 (Sato et al)?
4. Is the subject matter of claim 15 obvious under 35 USC 103(a) from Iwata et al in view of US Patent 6,024,674 (Sato et al) and 5,970,951 (Ito)?
5. Is the subject matter of claims 1-9, 11 and 13-20 obvious under the judicially created doctrine of double patenting in view of US Patent 6,701,893 that has issued on co-pending application Serial Number 10/064,507?
6. Should an Examiner be allowed to express both prior art rejections and also double patenting rejections without requesting reexamination of the patent upon which the double patenting rejection is based?

The Board may not want to address this last point, but it is believed within its province of dealing with the propriety of Examiner's rejections.

GROUPING OF THE CLAIMS

The only claims that stand or fall together are claims 1 and 7. The patentability of that group and all other claims will be argued separately.

APPELLANTS' ARGUMENTS

Dealing first with the rejections under 35 USC 102, as the Board well knows, this requires only a reading of the rejected claim on the reference. Therefore appellants will set out the language of each so rejected claim and underline the limitations that find no response in the Iwata et al reference.

> 1. A vehicle transmission system protection by engine control method for a vehicle in which rotation of an internal combustion engine is transmitted to a driven wheel through a transmission system, said method comprising the steps of detecting during engine acceleration variations in the rotational state of a shaft, determining if the degree of change in rotational state variation is excessive and will cause difficulties in the transmission system, and restricting engine output if the degree of change in rotational state of a shaft is excessive.

Appellants base their control only on shaft speed variations unlike Iwata that is intended to control wheel slip by determining when a driven vehicle wheel is actually slipping. He does measure engine speed, but never a speed difference. Engine speed is only measured to determine if the vehicle is accelerating, at steady state or decelerating. However, this is not to determine slippage as is evident from his claim 1 which states "said controller means deriving wheel slippage on the basis of said driving wheel indicative data and said vehicle speed representative data to initiate a slip control mode operation when the wheel slippage is greater than a predetermined slip threshold".

Claim 2 still further distinguishes as set out below:

> 2. A vehicle transmission system protection by engine control method for a vehicle as set forth in claim 1 wherein the degree of change in rotational state of the engine rotational state is determined by measuring shaft speed on successive rotations.

The first portion of the distinction has been discussed in connection with claim 1. In addition to not sensing changes in shaft speed, the reference does not make any successive measurements to initiate his slip control. It is based on an instantaneous measurement as discussed above.

Claim 3 additionally distinguishes as set out below:

> 3. A vehicle transmission system protection by engine control method for a vehicle as set forth in claim 1 wherein the degree of change in rotational state of the engine rotational state is determined by measuring shaft speed during a portion of shaft rotation during successive cycles.

In addition to the distinctions already discussed, this claim calls for the speed variation to be determined on successive engine cycles. Engine cycles are nowhere mentioned in the reference except when explaining when the fuel injector discharges.

The distinctions of claim 5 are set out below:

> 5. A vehicle transmission system protection by engine control method for a vehicle as set forth in claim 1 wherein the degree of change in rotational state of the engine rotational state is both degree of rotational variation and rotational acceleration.

At the risk of undue repetition, the reference is sensing wheel slip to initiate control not engine rotational speed or acceleration.

Claim 7 stands or falls with claim 1.

The distinctions of claim 8 are set out below:

> 8. A vehicle transmission system protection by engine control method for a small vehicle as set forth in claim 7, wherein spark timing is changed by a time set in a timer.

Although the reference primarily adjusts the engine speed by controlling the fuel injection, it states in passing that the spark control could be utilized, but not how as is required for anticipation.

Claim 11 is a method claim and recites in essence the same distinctions as claim 1. However because of the difference between method and apparatus, this claim does not stand or fall with that claim.

Claim 4 is rejected under 35 USC 103 on the combination of Iwata et al with Ito. This claim depends on claim 3 which, as has been discussed above, deals with the shaft speed measurement during successive cycles, something not disclosed in Iwata et al. Claim 4 specifies that the successive cycles utilized are the compression and exhaust cycles. These have been found by appellants to be two specific cycles where the speed variation is very reliable in determining excessive acceleration. Not only do the references fail to relate to speed measurements on successive cycles, their control is for totally different reasons. Iwata et al relates to vehicle wheel slip control while Ito relates to engine over speed prevention. These are totally different conditions and one of ordinary skill in the art would not look to one problem solution for a solution to a totally different problem. Thus the Examiner is clearly attempting to build appellants claims from bits and pieces of the prior art rather than combining the art on the basis of its teaching.

Turning now to the rejection under 35 USC 103(a) of claims 10, 12-14 and 16. These claims clearly recite that the protected transmission element is a clutch. Again all of these claims deal with the measurement of changes in shaft speed as the feature that requires the protection.

The Examiner bases this rejection upon the basic reference to Iwata et al, that has all of the defects discussed above. To reiterate, this reference does not base its engine control on shaft speed variations. However it does determine if engine speed is decreasing and if so, it discontinues its control operation. The Examiner has employed a secondary reference in his rejection of these claims because they call for the protected transmission element to be a clutch. The applied Sato et al reference does relate to transmission clutch protection, but operates to reduce clutch judder by sensing actual judder of the clutch, not a condition that could cause it.

It is submitted that this proposed combination makes it abundantly clear that the Examiner is attempting to build appellants claims from bits and pieces of the prior art. If Sato et al did not actually measure clutch chatter, it might be relevant. But then it should be the basic reference not a secondary reference.

Also the Examiner has made allegations regarding the alleged disclosure of certain additional limitations in claims 13, 14 and 16, which limitations have been rebutted in the previous discussion of claims 2, 3 and 5 respectively. That argument is incorporated herein by reference. However the claims do not stand or fall together as they fall in different statutory classes.

Turning now to the 35 USC 103(a) rejection of claim 15 on the Iwata et al, Saito et al and Ito combination, this claim is a method claim like claim 5, but unlike that claim this depends on claim 14 rather than claim 1, as with claim 5. Therefore the previous arguments as to the patentability of the features of those claims is incorporated herein by reference. However for the reasons just stated this claim stands or falls alone.

Now the rejection which appellants attorney takes the most offense with will be discussed, that of obviousness type double patenting. Where such a rejection is heaped upon an art rejection, it would invite a challenger to the earlier patent to state that the art rejections apply to it. There can actually be no alternative. The MPEP has several sections that deal with full faith and credit, but they all refer to subsequent actions in the same case. However it is submitted that the same should apply here. Assuming, however, that the Board, as appellants hope, will reverse those art rejections on their merit, appellants will discuss this ground of rejection. It is admitted that the method and apparatus here utilizes an inventive concept as disclosed in the earlier patent, that does not mean that other inventors of a common assignee can not make an invention in utilizing the same principle to solve a totally different problem. In fact most inventions apply previous features to solve different problems. This does not mean that all uses of the underlying principal are unpatentable.

The earlier patent relates to control of wheel slippage as does the Iwata et al reference, but this quite a different problem than transmission and specifically clutch control. The Examiner in that earlier case did not even cite the Iwata patent, apparently because he realized that it worked in a different manner and utilized a different apparatus.

In view of the foregoing the Board is most respectfully requested to reverse all grounds of rejection applied by the Examiner.

Respectfully submitted:

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Attachment: Credit Card Authorization for Brief Fee

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APPENDIX

CLEAN COPY OF CLAIMS ON APPEAL

1. A vehicle transmission system protection by engine control method for a vehicle in which rotation of an internal combustion engine is transmitted to a driven wheel through a transmission system, said method comprising the steps of detecting during engine acceleration variations in the rotational state of a shaft, determining if the degree of change in rotational state variation is excessive and will cause difficulties in the transmission system, and restricting engine output if the degree of change in rotational state of a shaft is excessive.

2. A vehicle transmission system protection by engine control method for a vehicle as set forth in claim 1 wherein the degree of change in rotational state of the engine rotational state is determined by measuring shaft speed on successive rotations.

3. A vehicle transmission system protection by engine control method for a vehicle as set forth in claim 1 wherein the degree of change in rotational state of the engine rotational state is determined by measuring shaft speed during a portion of shaft rotation during successive cycles.

4. A vehicle transmission system protection by engine control method for a vehicle as set forth in claim 3 wherein the successive cycles are a compression cycle and an exhaust cycle in a four cycle engine.

5. A vehicle transmission system protection by engine control method for a vehicle as set forth in claim 1 wherein the degree of change in rotational state of the engine rotational state is both degree of rotational variation and rotational acceleration.

6. A vehicle transmission system protection by engine control method for a vehicle as set forth in claim 1 wherein the degree of change in rotational state of the engine rotational state is determined by measuring the time interval during a fixed degree of shaft rotation and for a complete rotation including the measured fixed degree of shaft rotation.

7. A vehicle transmission system protection by engine control method for a vehicle claim 1 wherein the engine output is varied by changing the spark timing.

8. A vehicle transmission system protection by engine control method for a small vehicle as set forth in claim 7, wherein spark timing is changed by a time set in a timer.

9. A vehicle transmission system protection by engine control method for a small vehicle according to claim 7, wherein the change of spark timing is feedback controlled such that acceleration of engine revolution will not exceed a set value.

10. A vehicle transmission system protection by engine control method for a vehicle as set forth in claim 1 wherein the transmission system is comprised of a clutch and a transmission and the avoided undesirable transmission system condition is clutch chattering.

11. A vehicle comprised of an internal combustion engine, a transmission system driven by said engine, a driven wheel driven by said transmission system and an engine control for detecting during engine acceleration variations in the rotational state of a shaft, determining if the degree of change in rotational state variation is excessive and will cause difficulties in the transmission system, and restricting engine output if the degree of change in rotational state of said shaft is excessive.

12. A vehicle as set forth in claim 11 wherein the transmission system comprised of a clutch and a transmission and the avoided undesirable transmission system condition is clutch chattering.

13. A vehicle as set forth in claim 12 wherein the engine control determines the degree of change in rotational state of the engine rotational state by measuring shaft speed on successive rotations.

14. A vehicle as set forth in claim 12 wherein the engine control determines the degree of change in rotational state of the engine rotational state by measuring shaft speed during a portion of shaft rotation during successive cycles.

15. A vehicle as set forth in claim 14 wherein the successive cycles are a compression cycle and an exhaust cycle in a four cycle engine.

16. A vehicle as set forth in claim 12 wherein the engine control determines the degree of change in rotational state of the engine rotational state is both degree of rotational variation and rotational acceleration.

17. A vehicle as set forth in claim 12 wherein the engine control determines the degree of change in rotational state of the engine rotational state by measuring the time interval during a fixed degree of shaft rotation and for a complete rotation including the measured fixed degree of shaft rotation.

18. A vehicle as set forth in claim 17 wherein the engine output is varied by changing the spark timing.

19. A vehicle as set forth in claim 18 wherein the spark timing is changed by a time set in a timer.

20. A vehicle as set forth in claim 18 wherein the spark timing is feedback controlled such that acceleration of engine revolution will not exceed a set value.